# Rosemont Copper Project
# Hydrology/Water Quality Meeting

ADEQ

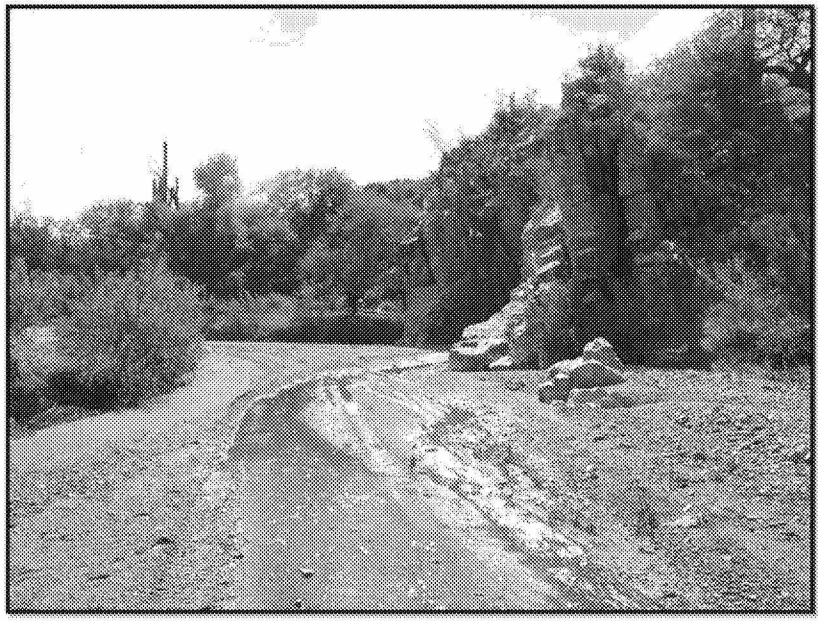
April 18, 2017

ADEQ Arizona Department of Environmental Quality

# ADEQ 401 Scope

ADEQ's review included the actual dredge/fill activities proposed in the CWA 404 application **that will be conducted within the ordinary high water mark**, and impacts to downstream waters as a direct result of those activities

Protection of Outstanding Arizona Waters (OAWs) is provided by Antidegradation Rule (R18-11 107 and 107.1)



# Antidegradation Rule

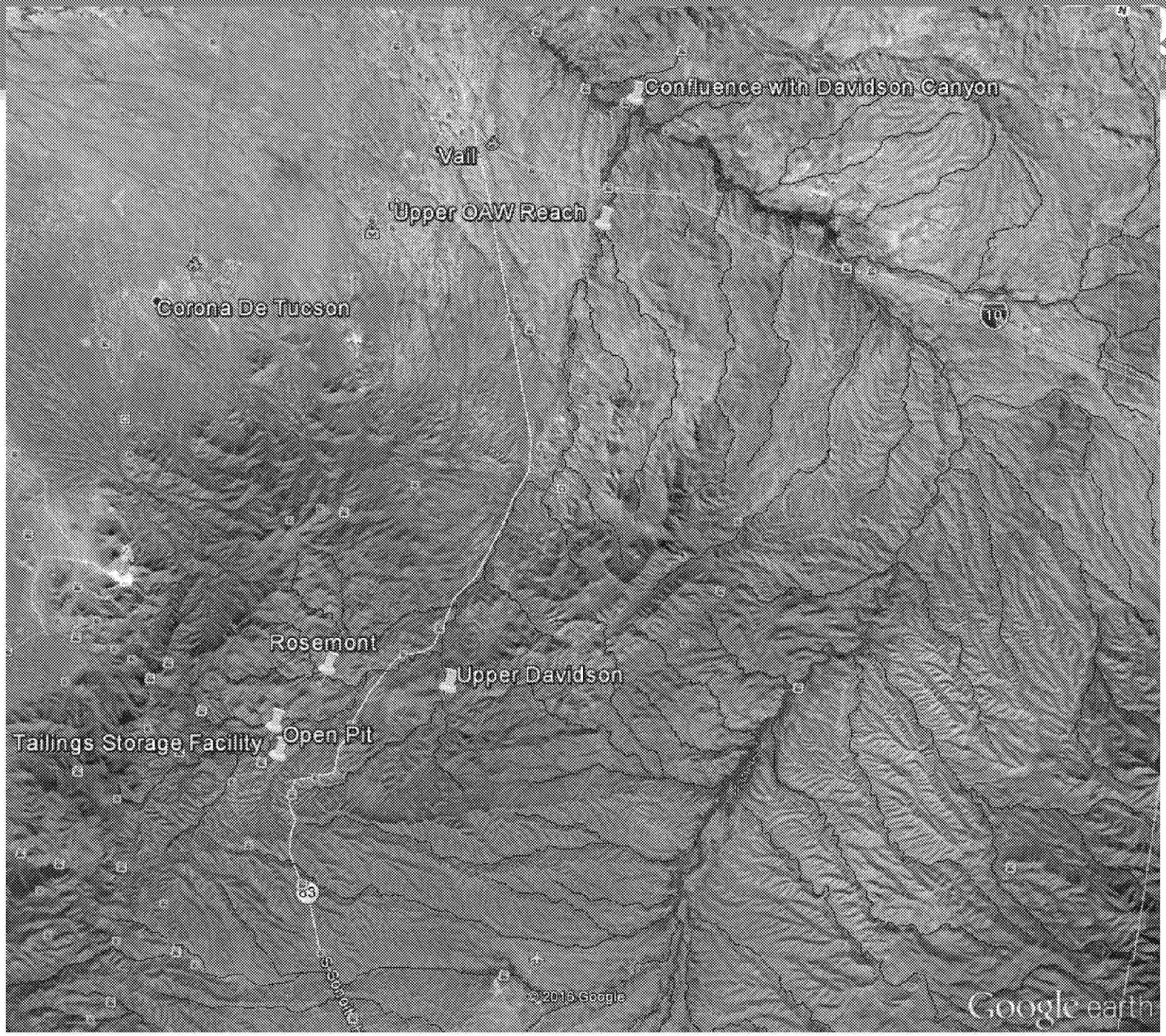
- R18-11-107(D) Tier 3: Existing water quality shall be maintained and protected in a surface water that is classified as an OAW
- R18-11-107.01(C) Tier 3 antidegradation protection

  1.) only applies to OAWs

  2.) new or expanded discharge directly to an OAW is prohibited

  3.) discharges to tributary or upstream of an OAW must be shown to not degrade the OAW in the application

  4.) a 404 permit that may affect exiting OAW water quality requires an individual 401 to ensure water quality is maintained and protected


Confluence with Davidson Canyon
Vail
Upper OAW Reach
Corona De Tucson
10
Rosemont
Upper Davidson
Tailings Storage Facility
Open Pit
83
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# 401 Certification Considerations

- Reviewed data associated with EIS development
- Reviewed and considered required USFS mitigation measures
- Considered requirements of Multisector General (MSGP) and Aquifer Protection Permits (APP) issued by ADEQ
- Issues reviewed in developing 401 Certification
  - Changes in ambient water quality
  - Changes in sediment loading to system
  - Reduction of available assimilative capacity in OAW
  - Degree of confidence in modeling techniques utilized
  - Potential for cumulative effects

# Rosemont 401 Cert Special Conditions

- Final 401 Certification issued February 3, 2015
  - Surface Water Mitigation Plan (approved in Dec 2014)
    - Requires development of site specific hydrology and chemical model to predict changes as mine construction progresses
    - Describes potential mitigation measures
    - Requires that mitigation measures meet water quality standards
    - Describe various monitoring programs that will be used to evaluate water quality

Under the 401 Certification, Rosemont is responsible for controlling to water quality leaving their site. There are many other activities that occur in the 12 miles between their outfall and the Davidson Canyon OAW that could impact water quality.

# Will proposed activities violate SWQS?

- Synthetic Precipitation Leaching Procedure (SPLP) analysis of waste rock shows that no in-stream SWQS will be exceeded
- 401 Certification and MSGP require that discharges from Rosemont do not cause or contribute to an SWQS exceedance
- Required USFS mitigation measures maintain water quality in Barrel Canyon
- Limited stormwater data from lower Cienega Creek exceeds total lead, selenium and arsenic SWQS

# SPLP Data

| Parameter | Waste Rock | Soil Cover | A&We SWQS | FBC |
|---|---|---|---|---|
| Silver (d) | 0.0025 | 0.0025 | 0.034* | |
| Lead (t) | 0.0048 | 0.0151 | NNS | 0.015 |
| Selenium (t) | 0.0200 | 0.0200 | 0.033 | |
| Copper (d) | 0.0085 | 0.0067 | 0.085* | |
| Arsenic (t) | 0.013 | 0.034 | | 0.03 |
| Mercury (d) | 0.0002 | 0.0101 | 0.005 | |

*Dissolved SWQS is hardness dependent; calculated at a hardness equal to 400 mg/L

**Conclusion: No violations of SWQS will occur due to Rosemont activities**

# Will proposed activities impact OAWs?

- Long term drying trend in larger Cienega Creek watershed is occurring
- Davidson Canyon OAW spring flow influenced by alluvial system
- 401 mitigation plan requires Rosemont to estimate flow reduction during phased project development and determine how to make up reduced flows in the OAW
- Changes in sediment load and flow in OAW are within normal variation in ephemeral system

**Conclusion: No water quality impacts to OAWs due to Rosemont activities**